CONSUMERS' Guide

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RAYON COMES OF AGE

CONSUMERS' Guide

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MEAT prices, that provoked headlines, protests, and strikes six months ago, have been quietly shrinking ever since and today are back to their late 1934 and early 1935 levels. Not headlined now is the fact that meat costs one-fifth less than it did at its peak in the fall of 1937, 4 percent less than in February 1937, and 5 percent less than in February 1936. In 6 months' time, the price of a pound of sirloin steak has dropped off 15 cents; round steak, 14 cents; rib roast, almost 10 cents. Pork chops have dropped one-third in price, and sell for 15 cents a pound less than at their peak last fall; pork loin roast is 14 cents cheaper; smoked pork products, from 5 to 8 cents a pound less. Lamb rib chops sell for 9 cents a pound under last fall's price; leg of lamb, 6 cents less.

Two forces have been tugging downward on these prices: Supplies, seriously curtailed by the 1936 drought, are filling up again; consumer incomes have been shrinking. Keep posted on food price changes and what's behind them through "Your Food Supplies and Costs," published in every other issue of the CONSUMERS' GUIDE.

A CHICAGO consumer wants to know whether anywhere else in the country there is a daily broadcast on best food buys similar to the one by New York City's Department of Markets. Our answer, useful perhaps to other consumers, is that the program nearest like New York City's is given on weekdays from Monday through Friday at 9:30 A. M., Eastern Standard Time, by New England's Consumers' Institute, with the help of Massachusetts's Department of Markets, over station WCOP in Boston. Lucky the consumer within earshot of these 2 reporting services; they ease the chore of daily marketing on small budgets.

Many other kinds of consumer broadcasts are on the air these days. Next summer the General Federation of Women's Clubs will celebrate the fifth anniversary of their weekly consumer program, conducted in cooperation with the Consumers' Counsel Division of AAA. Tips to consumers are given every Tuesday at 2:30 P. M., E. S. T., over the NBC red network, on this program.

"Your Health" is discussed every Wednesday at 2 P. M., E. S. T., over the same system, by the American Medical Association. The National Congress of Parents and Teachers broadcasts over NBC's blue network on Wednesdays at 4:30 P. M., E. S. T.

Textiles and household goods come in for their share of attention over station WCOP in Boston on Tuesdays at 10:45 A. M., and Thursdays at 10:30 A. M., both E. S. T. The Chairman of New England's Consumers' Institute puts on a program over station WAAB (Boston) at 1:30 P. M., on Fridays.

In New York City, Columbia University gives a health talk on Tuesdays at 10:45 A. M., E. S. T., over station WNYC.

Consumer programs are provided by the University of Wisconsin over station WHA on Saturdays at 11:30 A. M., C. S. T.

"Housekeeper Chats," prepared by the U. S. Department of Agriculture, are broadcast by some 300 local stations dotted over the country. Typical subject matter for one week covers such topics as these: Notes for food shoppers; planning the year's food supply; how to buy eggs; news notes from State Departments of Health; questions and answers about Food and Drug Administration activities. Consult your local stations to find out if and when this program is featured in your town.

"Is celery sprayed with a dangerous chemical in order to bleach the leaves and kill slugs?" asks a Pennsylvania consumer. "Are you taking chances if you eat celery leaves? Is the same method used with lettuce?" . . . Readers who saw our March 25, 1935 issue know how farmers bleach celery. The old-fashioned way was to bank the earth around the stalks. This practice is still followed by some farmers; others place boards or paper on either side of the row of celery. Like most vegetables, celery is subject to attack by insects and is fairly generally sprayed with insecticides and/or fungicides. While the Department of Agriculture urges farmers to use organic insecticides which are not toxic to humans, the more common practice is to spray with a lead arsenate. When a kind of gray film covers the leaves, it is a pretty good sign that a large residue has remained on the celery. Consumers are strongly urged to avoid eating the exposed parts of such celery. Sometimes it is difficult to tell with the naked eye whether a spray has been used and left too strong a trace. Since the lead arsenate does not penetrate the plant, doubtful consumers can be on the safe side by eating only the inside stalks and leaves which could not have been exposed to a spray. . . . Somewhat the same situation holds in the case of lettuce. To be on the safe side, particularly when you are not familiar with the way the lettuce has been treated on the farm, it is a good rule to discard ouside lettuce leaves.

RAYON COMES OF AGE

New rules for labeling put this man-made fabric into the news

FLIP the sheets of any newspaper these days and you are bound to see the name of that up-start fiber—RAYON—heading advertisements for dresses, lingerie and draperies. For rayon is through with playing hide and seek. It has come of age. Like the venerable fibers—wool, cotton, silk and flax—which founded the house of textiles centuries ago, it has accepted its name and the responsibilities that go with a name.

Of course, rayon will continue to weave its way into practically every kind of material from the heaviest of twills to the thinnest of voiles. But its presence will be announced via a label. According to the new trade practice rules established for the rayon industry, rayon-made crepe, velvet, chiffon, and such will be marked "rayon crepe," "rayon velvet," etc. If a fabric is composed of a mixture of rayon and other fibers, or if rayon staple fibers have been blended with other fibers, the fact that rayon is present will be mentioned. Often, too, you will find printed on the label, instructions on how to care for this particular rayon material. How this change of front came about is important consumer history.

The story of rayon's career is a fascinating one. Some people say it entered the house of textiles through the back door. At least, most agree it came in on the shoulders of silk. When synthetic fiber made its first appearance, it was dubbed "artificial silk," though it had neither the elasticity, nor the tensile strength, nor the softness of silk. It was harsh and glittering, but it looked something like silk. When produced on a vast scale it could be manufactured into yarns and materials at less cost than silk. In bargain basements, shiny bedspreads, drapes, dresses, underwear made of synthetic yarns were sold as "artificial silk," "art silk" or "fiber silk." Consumers buying these bargains in elegance often had weird experiences. After the first laundering, a handsome pair of pajamas might be almost a third longer than it was originally—or a part of one

Cellulose is the basic ingredient of rayon. These blotter paper-like sheets are made of cotton linters and wood pulp, chemically treated and pressed. They are ready for a series of chemical baths which will transform them into a viscose solution, later to be hardened into thread.

sleeve might mysteriously melt away when it came in contact with a hot iron. Seams on the dresses made of these new materials often did not hold. Stitches in knitted goods raveled away to nothing. Consumers were baffled by these new "silk" materials.

Silk manufacturers were alarmed. They considered these artificial silks a poor imitation of their "natural" product. This invasion of the textile field would give silk a bad reputation. The makers of synthetic yarns said, "Wait." They were confident that given time their product would prove to be more than a poor imitation of silk. Scientists in their laboratories were learning to improve the quality of this man-made fiber. They were learning to make it more flexible, to make it stronger when wet, to make it more resistant to heat, to make it less harsh and shiny.

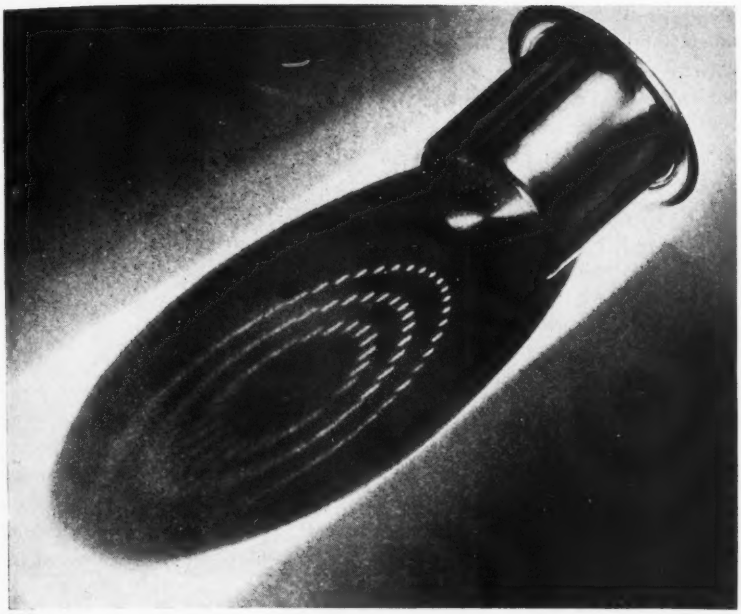
Not merely a substitute for silk, this improved product was hailed as a new basic material for textiles. Both the rayon and the silk industry agreed that it should have a name of its own. In 1924 the National Retail Dry Goods Association taking an interest in this argument, headed up a nominating committee to find a name for this troublemaker in the yarn family. From numerous candidates, Rayon, Klis, Filatex, Chardonnet, and Glistra, Rayon was selected as the candidate most likely to succeed as the generic name for all synthetic yarns. The name was acceptable to the manufacturers of man-made fibers at that time. Later there was some objection to the term, rayon, as the designation for acetate yarn. It was pointed out that rayon was too broad a term to cover all synthetic yarns.

Rayon yarns are made by four different processes — nitrocellulose, viscose, cuprammonium, and acetate. In all four methods, cellulose is the basic material used in manufacturing. Chemicals are used to dissolve cellulose into a solution suitable for spinning. Synthetic yarns made by the first three methods are regenerated cellulose. Yarns made by the acetate process are a chemical compound of cellulose and acetic acid known as cellulose acetate. Some of the makers of acetate yarns felt that since their finished product was a different substance than those made by the other methods, it should not be called by the same name. They preferred to call it acetate yarn or synthetic yarn.

It was not until 1937 that the argument of whether acetate yarns belonged in the rayon group or not was settled. In October of the past year, the Federal Trade Commission established the Trade Practice Rules for the Rayon Industry. Rule number 1 defines rayon.

"The word rayon is the generic term for manufactured textile fiber or yarn produced chemically from

This glutinous solution is liquid rayon. When filtered, aged, and forced through a spinneret, it will be given more chemical baths to coagulate it into thread.



Holes in a spinneret determine the thickness of rayon filaments which will be twisted into thread. Spinnerets are usually made of durable precious metals with holes accurate to the ten-thousandths of an inch.

cellulose or with a cellulose base and for thread, strands or fabric made therefrom, regardless of whether such fiber or yarn be made under the viscose, acetate, cuprammonium, nitrocellulose or other process."

Furthermore the rules go on to state that "it is an unfair trade practice to cause such fiber or yarn or thread, strands or fabric made therefrom to be sold, offered for sale, distributed, advertised, described, branded, labeled or otherwise represented (1) as not being rayon; or (2) as being something other than rayon; or (3) without disclosure of the fact that such material or product is rayon, made clearly and unequivocally in the invoices and labeling and in all advertising matter, sales promotional descriptions or representations thereof, however disseminated or published."

Though back in 1924 most of the manufacturers of synthetic fibers accepted rayon as the generic name for their product, that name was too often lost in the looms of the weaving industry, in ready-to-wear factories, and in the ads of the department stores. Too often the new silk crepe or velvet dresses carried no fiber identification mark to tell the consumer that they were made of rayon or part rayon and that they required a different kind of treatment than materials made of other yarns. With lack of frank labeling, the suspicion began to grow in consumer's minds that rayon, although it "made up" beautifully, was inferior in wearing quality to time-tested wool, cotton, and silk.

Rayon has made tremendous progress in its comet-like career. The first rayon yarns were harsh, brittle, and coarse. Now the techniques used in making synthetic fibers have been so improved that the yarns can be made in various sizes, and twists, and filament counts. They can be shiny, semi-bright or dull. They can be spun like reeled silk of long continuous filements, or they can be cut into short lengths and spun like cotton and wool.

Rayon combines well with other fibers. Many of our "new" materials today are made of yarns which have been spun with cotton, wool, or silk, combined with rayon. Others are made of pure rayon. Rayon has made it possible for more people to afford a variety of fabrics. Before rayon, velvet was identified with the robes of kings. Today, an evening gown of transparent velvet made of rayon and silk, or rayon and cotton, is possible for the girl living on a modest budget.

Because of rayon, far more color combinations can be obtained in textiles. Acetate rayon takes entirely different dyes than other types of rayon, silk, wool or cotton. A material woven of acetate and other fibers can be cross-dyed, thus achieving many interesting effects.

This chameleon fiber has stimulated the creation of many new weaves. Twisted rayon thread is responsible for the many rough and pebbled crepes and matelasses which have appeared in recent seasons. Rayon is at home in any type of construction—woven, knitted, braided, or lace. It goes into materials for curtains, draperies, unholstery and rugs and, in greatest volume, in wearing apparel.

The versatility of rayon is one of its chief virtues, yet at times it has given it a rather questionable reputation. Every fiber has definite characteristics which carry over into the fabrics in which it is used. As pure silk is the strongest of the fibers, materials made of pure silk firmly and evenly woven have this natural strength. Wool is famed for its warmth, but must be laundered carefully; linen made from pure flax has a reputation for wearing like iron but of not holding color well; cotton dyes easily and if the dye is "color perma-

nent" keeps its color through many washings. Now rayon, though it can look like a material made of cotton, wool, or silk, has definite personality traits of its own.

It is not as elastic or as strong as silk. It loses some of its strength when wet, and if some rayon materials are stretched when wet, they do not regain their shape. Acetate rayon, because it is not highly absorbent, does not stain or soil easily, but it can be ruined if pressed with a hot iron, and it will dissolve if it comes in contact with cleaning fluids which contain acetone or chloroform.

For years, consumers unaware of these idiosyncrasies of rayon bought dresses made of it and treated them like other fabrics only to discover too late that they did not react the same way. Some merely grumbled among themselves; others returned their purchases to the stores and demanded compensation. In New York the members of the Federation of Women's Clubs decided to organize their complaint into an effective protest. In 1936 the women of this organization, whenever they purchased a fabric, requested that the store record the fiber content on the sales check. The checks were then collected and forwarded to the Federal Trade Commission.

There is little doubt that this and other concerted consumer drives for fiber identification were instrumental in establishing the trade practice rules for the rayon industry. In its December 1937 issue, one of the leading publications of the distributing trade says, "It has been stated that the Federal Trade Commission was induced to issue these rayon regulations by the petitions of 100,000 women . . . more than 2,000,000 women have appealed to the Government for these rulings."

This same publication predicts that frank labeling of rayon will be an asset to the rayon industry . . . "Because now that rayon is to stand on its own feet and be identified, intelligent manufacturers who use rayon will be more concerned about the quality of their rayon and will more and more be advertising the real merits of this man-made fiber."

Though the makers of rayon have had a spectacular success with their product in the brief span of 27 years since commercial production was begun in this country, the creation of rayon has a much longer history. For about three centuries, the idea that man might be able to make a fiber which, like cotton, wool, silk and flax, could be spun into cloth, drifted from one scientific brain to another. As early as 1664 an English scientist suggested that it could be done if we could learn from the silkworm how to spin a long continuous thread. Many attempts were made but it was not until the latter part of the 19th century that experiments in making synthetic fibers brought promise of practical results. Swan, of England, laid the foundation stones for the industry by inventing the nitrocellulose process for making lamp filaments and developing it for making textile yarns. In 1891 a French chemist, Count Hilaire de Chardonnet, after intensive research of his own via the nitrocellulose process, started to manufacture synthetic yarn. In 1899 his products, exhibited at the Paris exhibition, won the Grand Prix. To the casual observer the harsh glittering stuff was probably of little interest. If told that some day he would be wearing it next to his skin, that it would be made into suits and dresses, into straw for hats, that it would be draping his windows, upholstering his furniture, and that in another form it would be covering his loaf of bread, his half-pound of bacon, his package of cigarettes, he would probably have pooh poohed the idea.

But what the casual observer did not know was that at the same time this fiber was being exhibited, the frontiers of cellulose chemistry were being pushed forward. Scientists were inventing new ways to make artificial fibers. Machinery to handle it for mass production was being perfected. By 1903 the four processes used for making rayon were invented—and Man had presented another gift to himself. We say man in general for we cannot credit the creation of rayon as we know it today to one man or even to a few men. It is the teamwork of scientists, inventors, capitalists and workers. Without the knowledge of cellulose chemistry, without funds to invest in equipment, without many new kinds of machines, without sharp eyes and quick hands to tend these machines, rayon could not be made.

Today 16 different firms in the United States manufacture rayon by the viscose, cuprammonium or acetate process. No rayon is made by the nitrocellulose process in this country at the present time. The total volume of rayon and staple fiber produced in the United States in 1936 was over 290 million pounds. To a rayon producer the words, "over-production," and "surplus stock" have little meaning. There seems to be an ever increasing market for their product. Throughout the depression when most manufacturers were curtailing production, rayon plants were expanding.

Today, rayon is the third most important textile fiber in terms of quantities produced. Of the 15,280 million pounds of cotton, wool, silk, and rayon produced in 1930, 82 percent was cotton, 14 percent wool, 3 percent rayon, and 1 percent silk. Of the 18,295 million pounds of these four textiles produced in 1936, 81 percent was cotton, 12 percent wool, 7 percent rayon, and less than 1 percent silk.

Significant, too, is the fact that while more and more rayon has been produced, more and more yarns of

In the viscose process, the coagulated thread passes through a spinning box to emerge as yarn looking like this and ready now to be reeled into skeins before washing, bleaching, and drying.

Rayon thread can be woven into practically any kind of fabric. Today, due to the new trade practice rules for the rayon industry, its presence in any material will be announced via the label.

the natural fibers have been produced, too. In 1930, the sum total of cotton, wool, silk, and rayon was 15,280 million pounds. In 1936, this figure had expanded to 18,295 million pounds.

Though rayon processes differ in the chemicals and procedures used in making a solution which can be coagulated into thread, the working principle in all processes goes back to the habits of the silkworm. It eats mulberry leaves, digests them and then through its spinneret—or spinning organ—it expels fine filaments which harden in the air. Making rayon involves taking pounds of cellulose and treating them chemically to turn them into a solution similar to the glandular secretion of the silkworm. This liquid is then forced through a nozzle analogous to the spinneret of the worm. As the liquid flows through the spinneret it is hardened in a chemical bath and twisted into thread.

When Chardonnet started his experiments in making synthetic fiber, he, like the silkworm, obtained his cellulose from the mulberry tree. Today rayon is made from cotton linters—the short ends of cotton which cling to the seeds after the cotton fibers have been removed—or from wood pulp. The cotton linters come to a rayon plant as baled loose pulp; wood pulp comes in the form of thick sheets like blotting paper.

To follow a sheet of cellulose through each process until it is a skein of yarn made by the viscose method would take about 12 days. During that time, you would be conscious of both clock and thermometer. A cotton producer looks to the sun to make his cotton grow, but a rayon producer depends on his time and heat regulators. A whole batch of rayon is easily ruined if someone forgets to check time or heat.

Until you reach the spinning room, there is little evidence that a

[Concluded on page 18]

WHAT IS SOAP?

Knowing what soap is made of, how and why it cleanses, is part of the equipment of the consumer who wants to get his money's worth for this essential

Two million bars of soap will come from this boiling cauldron of oils and alkalies. All types of soap-bars, flakes, liquids, have their beginning in a vat such as this one. At the kettle's bottom is soap's profitable by-product, glycerine.

SOAP is as ancient as history itself. Nobody knows who was the first to make it. It is even possible that soap was discovered rather than invented. Only in more recent times has soap ceased to be a luxury and become a necessity for the average household. In about the fifteenth century, its manufacture was concentrated in what is now the great seaport of Marseilles—today one of the thriving soap centers of Europe. The English picked up the art from the French and the industry flourished in Britain beginning with the reign of Charles I, who granted a monopoly to a group of soap-boilers in London. A heavy excise duty was levied on its production until 1853 when the levy yielded 1,126,000 pounds in English money—an enormous sum for those days.

Versatile, soap serves man as a cleansing agent, as the base of many medicines, in textile manufacture, in a hundred other ways as far apart as the delicate perfumed soap wafer in the bath and the strong laundry soap used in the kitchen. It is international, reaching out to the furthest parts of the globe for its ingredients. A great industry has been built around it. Its estimated annual consumption in this country alone is 25 pounds per person. In price it is within the reach even of slim pocketbooks. In quality, it covers a wide range; yet few consumers know what it is, why it removes dirt, and how to get the most of it for the money they have to spend on soap.

An important customer of the American farmer and cattle raiser, the soap manufacturer spends each year many millions of dollars for tallow and other animal fats destined for soap products, but relatively lit-

tle for cottonseed oil—at one time a leading ingredient of soap. Three decades ago, a good part of the cottonseed oil produced in the nation's southland went into soap. Today the cotton grower has found more profitable markets for this valuable by-product—particularly in the food industry. Also, in more recent years the chemist's laboratory has discovered other vegetable and plant oils which have almost completely displaced the use of cottonseed oil in soap.

Colonial America manufactured its soap in the home until the middle of the last century when it caught up with the industrial revolution. The soap kettle and the lye barrel were the standard equipment; the ingredients which went into the soap did not differ much from the basic ingredients used in the days of the Biblical prophets or in the great industry which exists in 1938.

It was left to 2 Frenchmen, working in the latter part of the 18th century, to discover methods of improving and refining the making of soap on which mass production of the materials is today based. Le Blanc discovered how to make soda (alkali) from common salt; and a few years later Chevreul determined the chemical makeup of fats and oils and what effect alkalies had upon them. Their work, says one great American soap authority, "took the making of soap out of the realm of guess work."

Today the soap industry in America is among our greatest. In 1935 it rated 45th of all industries in the United States in terms of the value of its products. There were 238 factories in operation doing over a third of a billion dollars business annually. Approximately 17,000 persons were employed in soap manufacture. Production, excluding shaving soap, liquid soap, soap powder, and scouring powder, totaled 2,458,000,000 pounds. A 3 cents per pound excise tax kept imports down to about 4,000,000 pounds in 1936; about 28,000,000 pounds left United States ports for foreign destinations.

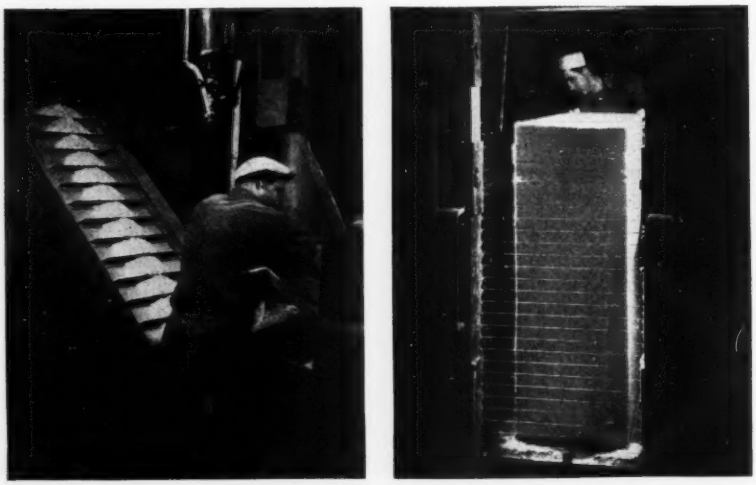
Products of the industry vary from a thick, "greasy" mechanic's soap to toilet soap. In between are shaving soaps, shampoos, flakes and laundry soaps, and other outgrowths of one of the best and simplest cleansing agents known to man. Into their manufacture go coconut oil from India, Ceylon, the Philippines and the South Sea Islands; palm and palm kernel oil from Africa and Sumatra; soybean oil from the United States and Manchuria; olive oil from Italy and Spain; cottonseed oil from our own South, from Egypt and the Sudan, and other vegetable oils from various sources; tallow and other animal fats from cattle roaming the ranges of North and South America and Australia. Chemists are continually experimenting in laboratories seeking new combinations of fats, oils, and the standard alkalies to develop new types of soap.

The scientist defines soap as the "metallic salt of a fatty acid"—meaningless words to the layman. Simpler is the definition "a substance resulting from the reaction of alkalies on animal or vegetable fats." Basically, that is all that any soap is. Difference in price comes with difference in the quality and quantity of the fats and alkalies used, other embellishing ingredients, and methods of manufacture and sale. Consumers whose purses are limited need only be certain that the soap they purchase for personal use or for use on delicate fabrics be pure and mild. Likewise, their best guide to purchasing soap for heavier work is that it meet the demands of the laundry or of hard scrubbing without being so strong as to injure the skin or the material the soap is used on.

Grocery shelves or the druggist's counter are accurate indices of the soap maker's ingenuity in designing various types of soaps for certain purposes. A soap may be hard or soft, liquid or a cream, flaky or an abrasive powder. The modern soapmaker is always at work seeking new varieties. But he must always start with the same 2 basic ingredients: a fat and an alkali. Additional ingredients added to these can increase the soap's ability to clean or to make abundant suds. Other materials are sometimes added to combat water hardness, or to give the soap a pleasant scent, or to lend to it any specific property which might be desired by the manufacturer.

Conflicting schools of opinion exist on what causes soap to clean. Few chemists will state categorically what it is in the combination of a fat and an alkali that removes ordinary dirt from the skin, clothing, or other surfaces to which it clings. A generally accepted theory is that soap does the impossible; it makes water *"wetter"* than it is in its natural state. The scientist in the laboratory says that when soap is dissolved in water, the water has a *low surface tension.* He means that soap and water do not so readily form into drops as do plain water and other liquids. Wash a dirty hand with plain water, and you will have little success. The water appears to run off the hand without getting *under* the dirt. But add soap, and the water seems to cling to the skin. And in doing that it gets between the skin and the dirt and adsorbs the dirt within the thin film formed by the solution of the soap in the water. Then, when the hand is rinsed, both the soap and dirt are carried away. Some scientists challenge this theory. They say it is inadequate and claim that chemical action of the soap itself causes the dirt to break away and be washed away in the water. Probably the answer lies in a combination of these theories. So far the best equipped laboratory and the most powerful microscope have been un-

All soaps contain water to make them dissolve more easily. Here tons of water are being poured into a soap kettle and mixed with the fats and alkalies from which will come soap. When the Government buys, it sets a maximum water content for soap.



Two steps in the story of soap making are told above. At the left perfume is being added to powdered soap on the way to the milling machine where it will be molded into bars. At the right, taut piano wires slice the molded cake of soap into slabs.

able to learn definitely the secret of this boon to civilization.

Manufacture of soap today is a story of steaming vats, great mixers, and huge molds in which the hot liquid soap is allowed to harden. A million pounds of soap may be made in a single "cooking." They are dried in great slabs and then cut up into the convenient sizes which the consumer buys over the counter.

Soapmakers who start their manufacturing process by using the best and the purest oils and fats get a head start in producing good soaps. Alert consumers want to know what raw materials go into their products and how good they are. There is little choice in good alkalies. Hard soaps are usually made with soda, while soaps made with potash are softer and dissolve easier in water. The fats also influence the hardness, solubility, appearance and other properties of the soaps. Hard fats such as tallows and certain other animal fats make very hard soaps. Therefore, rosin combined with alkali is often added to these soaps to soften them. Coconut oil and palm-kernel oil are favored by the soap manufacturer both in laundry and toilet soaps because they make hard soaps which at the same time dissolve easily and lather freely. A mixture of these oils with other fats is usually used. A straight palm oil produces a crumbly soap. Olive oil soap is also outstanding because it is mild and free lathering in warm water. It is often mixed with tallow and coconut oil soaps for use in milled toilet soaps. Other oils, such as cottonseed oil, corn oil, soybean oil, linseed oil, etc., all impart certain characteristics to soaps made from them.

Best toilet soaps are made from the purest, whitest, and least odorous fats and oils. If they lather freely—that is, if they are made of a mixture of coconut oil and tallow, palm oil, hardened fats, or olive oil—they rate high when they are properly made.

Again piano strings are used to cut the slabs of soap into the small bars which the consumer ultimately buys. The worker at the left cuts the slabs into long bars; his companion on the right slices them crosswise into the laundry or toilet cake size.

Best laundry soaps are usually made with a mixture of tallow together with some vegetable oil or rosin and often with certain "builders." Also, in some of them are alkaline, and other "builders."

A poorly made soap is one in which there has not been a complete combination of the fats and alkalies, or from which excess fats or alkalies have not been eliminated. Too much alkali in a soap—even a strong laundry soap—can prove definitely injurious to the hands. Excess fat makes the soap greasy, soft, rancid, and inefficient as a cleanser.

Soap making is roughly divided into two basic stages: (1) boiling fats or oils (liquid fats) or combinations of them, with alkalies to produce the actual soap. This, the professional soap maker calls saponification. And (2) finishing the soap by certain mixing, milling, or grinding processes to yield a soap suitable for the purposes for which it is designed. At this time also, naphtha, perfumes, and other ingredients may be added.

No minor by-product of the first stage of soap making is glycerine. Considered a nuisance by the soap manufacturer at one time, it is used for a number of purposes, both in industry and in the home. It plays a big part in the munitions industry in the making of dynamite and explosive gelatine. The soap industry itself sometimes returns the refined product to toilet soaps. In the home, glycerine is used for medicinal purposes and finds high favor as a skin softener.

Second stage of soap making is the "mixer." Hot liquid soap goes into the "mixer" after the impurities and excessive alkalies have been drawn off and the needed amount of water added. In the mixer are added chemicals, disinfectants, perfumes, "builders" to soften the water or to increase the cleansing power of the soap, abrasives for scouring soaps, dyes or other coloring matter, air for floating soaps—in fact all the extras demanded by the soap maker's formula. It is here that soap gets its final character and personality. Of course, the combination of fats and alkalies before this stage goes a long way in determining what the final appearance and makeup of the soap will be. No single soap can meet all the demands of the home and family. From this fact springs the need for the "mixer"—or, in professional soapmaker's parlance, the "crutcher."

A "builder" can be a water softener—such as sodium silicate—or can be a chemical added to prevent rancidity in soap. Borax acts as a water softener, while rosin is often present in bar laundry soap to increase its lathering power and to give it a tough waxy character. Coconut oil and palm kernel oil give lathering power to white laundry soaps and frequently are used to replace rosin in soaps designed for use in the kitchen or on delicate fabrics.

Oftentimes, in cheaper soaps, sodium sulphate, chalk, starch, and other substances are added as adulterants and fillers. These are merely intended to displace soap content, to increase the weight and size of the bar. In most cases, they do not add to the value of soap; they do not clean; they are not builders; they are merely hitch-hikers grabbing a ride at the consumers' expense.

After the soap has been put through the mixer, it is usually poured into huge frames to cool and harden—a process taking anywhere from 3 to 7 days. Then, unless the soap is to be milled, chipped, flaked, made into a powder, a cream, or dissolved to make a liquid soap, it is cut by a "slabber" into desired sizes, stamped, packed, and sent on its way to the consumer.

Price is not always an indicator of

the cleansing power of a bar of soap. In order to compare values in different soaps intended for the same use the consumer should know: (1) how much the soap weighs; (2) what proportion of excess alkalies or excess fats are contained in the soap; (3) what "builders" or "extras" it contains, their purpose, and what part of the soap they comprise; (4) how much water is in the soap (a certain amount of water is necessary in every soap); (5) if it is a floating soap, how much air is in it in relation to the size and weight of the bar; and (6) the best use to which the soap can be put. Few soap labels tell these things now. They are facts for consumers to aim at getting.

Now for a few hints on what to look for in particular kinds of soap. Milled soaps are usually made by drying the hot liquid soaps in ribbons, making them into a powder, adding perfumes and other materials, and then, under great pressure, squeezing the broken powder into bars and cutting them into cakes. This is called the milling process. Toilet soaps made by hardening the liquid soap into bars is said to be "framed." A toilet soap should be mild, free of excess fats and alkalies which might cause serious injury to the skin of the user. Floating toilet soaps purchased by the Government cannot contain more than one-tenth of one percent of free alkali while milled toilet soaps cannot contain more than one-tenth of one percent of free alkali. Free uncombined fats are usually limited to 2 percent, although sometimes it is desirable to have a larger amount in some toilet soaps. If properly protected against becoming rancid, such soaps can be more free-lathering.

Put a toilet soap to the tip of the tongue. A neutral one will not bite or burn, indicating it is free of alkali and is safe for skin and fine fabrics alike. If it is free of excess fats it will not feel greasy to the hands and, unless perfumed or medicated, will be practically odorless. If you choose a perfumed soap, buy one that retains its aroma during all the time that you use it; often a perfumed soap loses its odor after it has been used 2 or 3 times. Buy a toilet soap which is free of builders, such as sodium silicate and sodium carbonate. Learn if the soap is milled or molded. If milled, it should have not over a 15 percent water content; if molded, about twice as much. Compare the weight of a floating soap with one not so made. Floating soaps contain a large amount of air in the form of thousands of tiny bubbles. Usually they dissolve more rapidly, but sometimes they make better suds than ordinary soaps.

Purchase a laundry soap according to the purpose for which you want it. (See CONSUMERS' GUIDE, March 14, 1938.) If you want it for scouring and for heavy washing, then—if you are following Government standards—buy a strong soap with a maximum of five-tenths percent of excess alkali content and no more than 25 percent rosin. The proper addition of rosin increases the cleansing properties and lather of some soaps. Too much rosin makes the soap sticky and hardens fabrics washed with it. The soap should also contain 8 to 10 percent of "alkaline builders." Some prefer to add water softeners and other "builders" to the water separately rather than buying them as part of the bar, thus displacing the amount of pure soap. A yellow laundry soap often contains more true soap and less water than a white laundry soap. A white soap with more alkaline builder (to increase cleansing power) and coconut oil (to aid lathering) contains about 40 percent water. Allowing laundry—and other—soaps to dry before using will make them harder and reduce waste

[Concluded on page 19]

This man's job is to blend rare fragrances into new perfumes before they are mixed into expensive toilet soaps. He works with scents that are almost priceless.

The Wicked Fly

—careful householders pursue it! Here are some FACTS about the behavior of the fly and how to get the better of it before summer weather increases the health hazards from this common pest

(1) The correct way to hang a screen door is to have it open out. (2) A screen door that opens in makes it easier for flies to enter the house.

WELCOME the first fly that lights on your cuff in early spring. It's a timely reminder of the pesky generations to come unless you and your community do something about ferreting out and eliminating their breeding places.

If you wait too long to do the job, it's of little avail in torrid midsummer to organize the family into a swatting brigade. You can kill flies by the hundreds on one day, only to find that the next there are battalions more to fight. The only really effective way to free your home of flies is to cooperate in eradicating from the locality in which you live the refuse on which these dangerous insects breed.

Flies thrive on filth. Any decaying vegetable and animal matter will do. In its search for food the adult fly is invariably attracted to the house. Its keen sense of smell directs it to any exposed food. It is a diligent feeder. Between its forays to kitchen and dining room, it often goes back to the garbage heap. The hairs and bristles on its three pairs of legs are admirably suited to carrying disease germs, the eggs of various parasites, and organic waste. It may ease itself of this infinitesimal but dangerous burden as it crawls over food or as it rests for a moment on a person's face. This is not a pretty picture, but it's a true one.

There is laboratory proof that over 30 different disease organisms and parasitic worms can be carried by these insects, and there is strong circumstantial evidence that they carry more than these. They are notorious carriers of the varieties of bacteria responsible for summer diarrhea, to which children are especially susceptible. Time and time again health history has shown that where an epidemic of summer diarrhea is raging, flies are breeding and feasting.

Some protective measures which any family can take to safeguard its food supply and home from flies are discussed in the following pages. But better than all defensive measures is an offensive attack in the early

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When hunting flies with the aid of an atomizer, shoot the spray ceilingwards and aim directly at the flies. The pests are not killed unless they come in direct contact with the spray.

spring on the favorite breeding places of the enemy. If a community attacks the fly problem in the early spring, by seriously and thoroughly setting above to eradicate fly breeding places, it has gone a long way to insuring itself a more comfortable and healthy summer. A female fly during her lifetime lays from 2 to 4 batches of eggs in lots of about 120 or more. If conditions are favorable, one fly in early spring may be responsible for 10 or 12 generations of flies during the season.

A general cleanup campaign of all accumulations of refuse and rubbish is essential, and this campaign must be followed by constant vigilance over the cleanliness of house, barn, yard, alley and street. To eradicate flies from a community effectively and thoroughly, a health department must have funds to operate and must have the cooperation of all residents. Two important steps towards fly elimination are taken when garbage is speedily and efficiently disposed of and the regulations on the care of stables and receptacles for manure are enforced.

Many different species of flies, if given a chance, may invade the house. The most common is the housefly—a non-biting six legged insect with four black stripes down its back and a sharp elbow in one of the veins of the wing.

From the barn comes the stable fly. This one is a bloodsucking insect. It can bite and does. If it happens to be harboring dangerous disease germs, it can directly innoculate a person or animal with them. This fly is gray in color, somewhat fatter than the housefly.

Bluebottle flies, black blowflies, and greenbottle flies, which breed on decaying animal matter, fly into the house if given a chance. The bluebottle and blowfly have an especial liking for fresh meats and fruits.

One of the first flies one finds in the house in the early spring is the cluster fly, so-named because of its habit of massing in groups in warm corners on cold days. It is slightly larger than the housefly and has a covering of fine yellowish hairs. Another early spring visitor is the lesser housefly. It has a smaller, paler, and more pointed body than the common housefly. Its breeding habits are the same as those of the housefly, but it is not such an assiduous feeder and seldom alights.

Life cycles of flies vary with different species. The true housefly, which is the pest of man the world over, goes through three stages—the egg, the maggot period, and the pupa or resting stage—before it reaches maturity. From egg to adult, particularly in midsummer when conditions are favorable, may take only from 8 to 10 days. If the temperature is favorable, the eggs may hatch and the white cylindrical larvae or maggots may emerge in 12 hours. As the maggots mature, they grow restless and migrate to the edges of the manure pile or to loose materials under the edges of stones, boards, etc. The migration of the maggots is an important thing to remember in a cleanup campaign. One must ferret out their hiding places, which may be several feet away from the manure pile.

Flies may remain in the larval stage from 4 days to 4 or 5 months, depending on moisture, temperature, and food supply. The pupal stage may likewise stretch into months. It is in these two stages that millions of flies pass the winter. As soon as the warm weather sets in, they break through the sacs encasing them, emerge from soil or manure pile, crawl around until their wings ex-

pand, bodies harden and they are ready for flight. In midsummer, pupation takes only from 3 to 6 days, and in 2½ to 20 days the female will be ready to deposit the eggs for a new generation.

Recapturing flies in traps 13 miles from where they were liberated has been done, but ordinarily if food is available near their breeding place, they will stay close to it. The vision of a fly's compound eyes, which really consist of a thousand or more simple eyes, is wide but is not particularly acute. The fly has, however, a highly developed sense of smell which leads it straight to the kitchen. It also likes the warmth of a house, especially in cold weather.

No definite proof has developed that mature flies live over the winter to propagate in the early spring. In laboratory experiments, adult flies have not lived more than three months. They die quickly in the cold. If a house is infested with flies throughout the winter, chances are there is a good breeding place within the house where the females may deposit eggs.

Screening all doors and windows is the first preventive measure to keep flies out of the house. If the expense of screening every window is too great, those on the first floor, especially those of the kitchen and dining room should be protected first. Screens should fit tightly and the meshes of the screen should be small. About 16 meshes to the inch is a good choice. Screens made of copper are more expensive than those of painted or galvanized wire, but copper ones last longer and may be more economical in the end, especially in humid climates. To increase their wear, painted screens should be repainted each season. But even with the finest and tightest of screens, flies will wing their way into a home. Food should always be screened or protected in some way. The same sanitary measures the housewife takes at home to shield her food supply from these germ carriers should be taken by every market and grocery store.

(1) With its tongue, greatly magnified here, the housefly sucks but does not sting. (2) The foot of the fly, also magnified, shows the sticky pads which are well adapted to carrying and scattering contaminated material.

Fly traps, if properly constructed, well-placed, and well-baited, are effective means of catching flies. Bait pans should be well filled with a saccharine feast. A fermented mixture of one pint of backstrap molasses to 3 pints of water brings good results. Flies also have a liking for mashed over-ripe bananas and milk. Full directions for the making and caring for traps are given in the Government publication—"Flytraps and Their Operation"—available for 5 cents from the Superintendent of Documents, Washington, D. C.

Flies which still gain access to the house in spite of traps and screens can be poisoned in wholesale lots with a concoction made at home by mixing three teaspoonfuls of commercial formalin with a pint of milk or water, sweetened with a little brown sugar. This can be placed in saucers around the room after all other liquids are removed. A speedy way to attract flies to the drink is to darken the room except for the one window on which the saucer of liquid is placed. Here's another plot for ensnaring flies: Place a piece of bread soaked in a formalin milk solution on a saucer, in a tempting spot. Besides these homemade poisons one can also buy insect poisons. Some of these commercial poisons, however, contain arsenic, making their use rather dangerous, particularly if there are children in the family.

Spraying the house on summer days is becoming an indoor sport. Before spraying, all the doors and windows should be closed and should remain closed for 5 or 10 minutes while the room is filled with a fine mist of the insecticide. Later the fallen insects should be swept up and destroyed. Flies are not killed by the spray unless they are actually hit by it. Many fly sprays on the market are extracts of pyrethrum in a carrier of mineral oil similar to kerosene, and contain perfume. Sprays deteriorate if stored for some time in glass bottles exposed to the sunlight.

Spray preparation can be made at home by soaking 1½ pounds of pyrethrum flowers in a gallon of kerosene for 2 days, then straining off the liquid. Care should be taken not to use any spray containing kerosene near flames.

Householders serious about attacking this fly problem will find helpful, "The Housefly and How to Suppress It," available for 5 cents from the Superintendent of Documents, Washington, D. C.

STRAWBERRY NEWS

Market reporters hoist the flag marking a bigger and better strawberry season

STRAWBERRIES are moving north now in their ice-cooled cars. Strawberry tide may begin as early as December, when first shipments start trickling to market from Florida. It gains momentum from this area in January and February. Berry patches in Louisiana, Texas, and Alabama swell the tide. Louisiana is the big shipping State in April, followed by berries flowing from Mississippi, North and South Carolina, Arkansas, Tennessee, and Virginia. In May and June the middle States send their red wares to market. Finally in July and August the strawberry crest passes through the northern States of Massachusetts, Michigan, Oregon, and Washington, and the strawberry tide disappears as suddenly as it surged up out of the South.

Blight, cold weather, frosts, late springs, sometimes thin the tide until it is a narrow trickle reaching consumers. This year a December frost killed enough early plants in Florida to delay the first appearance of the berries on the market. Despite this, strawberries will be plentiful because of larger crops in the later producing States. Total acreage is higher this year than it has been since 1934. Altogether, 185 thousand acres are covered with strawberry runners this year, 13 percent more than last year. And from Louisiana reporters flash the news that growing conditions have been ideal, and production perhaps will be 22 percent more than last year.

Frost may be a blight or a boon, depending on when it occurs. Utilized to preserve strawberries, it is gradually becoming an icy road to salvation for strawberry growers. Ripe berries, which have gone unsold or which might have spoiled, are sometimes frozen. For ice cream, preserves, pies, and for consumers with a taste for strawberries from August to January when they are out of season, frozen strawberries have ceased to be something to wonder at and have become an everyday commercial event. In the year 1937 approximately 40 million pounds of strawberries were frozen.

Louisiana stars as the first strawberry State because out of every 100 quarts coming by carlot shipment to

market it supplies more than any other State. In an average year it markets 12 out of every 100 quarts. Arkansas usually provides 8 out of every 100 quarts; Oregon and Texas each 7 out of every 100. Fifth place goes to Missouri supplying 6 out of every 100 quarts.

So skillful are strawberry breeders that they have been able to develop strawberries to tease any palate, to fit almost any strawberry purpose, and to flourish almost anywhere. Of the 30 varieties of strawberries grown in the United States, the Klondike and the Blakemore are most widely grown in the South, the Aroma in the Central States, and the Howard 17 in the States farthest north. The Klondike, best known to consumers, for it makes up most of the strawberry tide that floods north from Louisiana, has a deep red color and firm crimson flesh. It is perhaps a little more tart than other berries. Because of its full flavor, ice cream manufacturers prefer it for their strawberry ice cream. Smaller, pinker, more likely to be flecked with yellow seeds, the Blakemore is less acid to the taste, and because it is easily capped it is popular for preserving. The Aroma, a large round crimson berry with a delicate flesh, is popular as a dessert. The Howard 17, the berry with the name that sounds vaguely as if it should be the name of an automobile, is a less round, long berry, red fleshed inside and out, less acid than the berries that come from the South and a favorite in the North for its very long season.

For preserves, strawberries should be easy to cap, medium sized, and have a tart flavor. They also should have a bright red color that does not darken after preserving. For ice cream, too, these qualities make for a rich smooth strawberry ice cream. The Klondike is excellent for both of these purposes as is the Marshall, a large, deep crimson, conical-shaped berry which appears about the middle of the strawberry season in the Middle-Atlantic and New England regions, but which is grown most extensively in Oregon for commercial preserving.

Relished for their flavor, strawberries lose nothing from being also an excellent source of Vitamin C, the food nutrient that helps to insure against that too-tired, lack of pep, feeling and too many visits to the dentist. A four-ounce serving of strawberries, for example, is about as full of Vitamin C as a half glass of orange juice, and a safe quota for the average person each day. Ninety percent water, strawberries contain practically no other important food elements except moderate amounts of calcium and iron.

Strawberry dollars may not be so seriously considered by consumers as other food dollars, but they are of prime importance to many strawberry planters. An examination of the Chicago consumer's strawberry dollar in 1934 showed that 20 cents went to the wholesale and retail dealers, 20 cents went to transportation and refrigeration, 7 cents to the marketing charges at the shipping point, and the remaining 53 cents went to the growers themselves. Growers do not always fare as well as this. These berries, like most others, are so highly perishable that if they are not sold one day, they may be unsalable the next day, depending largely on the weather. Sudden carloads of berries descending on a city market for quick sale have a sudden drastic effect on prices; their appearance may send berry prices to consumers catapulting down, upsetting prices back in berry counties. As a result of this, berry prices from day to day are frequently irregular. Louisiana farmers are attempting to regulate the flow of berries to market so as to avoid disastrous gluts. They plan to ship only U. S. No. 1 grade berries this year.

Interstate marketing of strawberries must be done in containers the sizes of which are fixed by the Standard Container Act of 1928. Before standardization was achieved, there were as many as 44 different sizes of berry boxes on the market. Now there are 3 sizes: one-half pint, pint, and quart. Whether the household buyer gets full measure in such boxes depends not alone on the honesty of merchants and the vigilance of local Weights and Measures officials, but also on consumer insistence upon properly filled berry baskets.

Quality grades, defined by the U. S. Bureau of Agricultural Economics, are necessarily more useful to growers and big buyers than to household consumers. Again, the reason is the perishable nature of the fruit. Louisiana makes grading by these Federal standards compulsory for all strawberries shipped out of the State. Many of those sold by Florida, Tennessee, and other States, too, are graded. But the final consumer never sees the grade on the box he buys. The careful family buyer will look for strawberries that are fresh, clean, and bright, have a solid red color and are set in a green clasped cap. Good buys are free of moisture, dirt, and trash. Small misshapen berries, the runt nubbins, usually have a poor flavor and sometimes are underripe. Size, however, is less important than color, though most consumers prefer large berries. Berries without caps are likely to leak their juices and to be wasty. Whiskers, a kind of mold, develop rapidly on capless and overripe berries.

When the juices have burst through the skins, the berries are well avoided. A container deeply dyed with strawberry stain is also a "don't buy" sign. White spots on the berries are a sign of inmaturity. Decay, easily seen in mold, may not necessarily occur on the top of the box of berries. To make sure, examine berries from down in the box.

RAYON COMES OF AGE

[Concluded from page 7]

rayon factory with its enormous drums and maze of pipes is the home of a textile fiber. In machine number one in a viscose plant, the cellulose sheets are steeped in caustic soda. Later the excess liquid is pressed out of them and they are broken up into crumb. The crumb, after being aged for a few days, is thoroughly mixed with carbon disulphide. In the process, the crumb changes to cellulose xanthate, an orange colored substance soluble in water. Another caustic soda bath changes the xanthate into a glutinous solution about the color and consistency of honey. This is the viscose solution which, when solidified, can be spun into yarn. But before being piped to the spinning room it must first be aged and filtered and refiltered to free it from every particle of foreign matter that might clog the hole of a spinneret.

For many years, the size of a hole stymied the progress of rayon. In order to produce fine filaments, spinnerets had to be made with orifices infinitesimal in size and accurate to the ten-thousandth of an inch. And they had to stay that way while miles and miles of liquid traveled through them. Rayon manufacturers have found precious metal the most durable and satisfactory material for spinnerets. Many of them are made of an alloy of platinum and gold. Some have holes so tiny that they are barely visible to the naked eye. Others have only one round hole. The single solid filament that streams through these spinnerets is used for artificial straw.

Transparent paper is made the same way as rayon yarn up to the time the viscous solution is ready to stream through the spinnerets. Then the liquid comes through a slit in a long continuous sheet and from that point on it is treated with different chemicals than those used in making yarns.

Filaments to be used in making yarns are given an acid bath to harden them as soon as they come from the spinneret. This chemical immersion also changes them from their caustic state into regenerated cellulose. Then these long strands of cellulose are ready to be washed, bleached, dried and twisted into rayon yarn, or to be cut up into the short length rayon staple fiber.

This rayon staple fiber may be shipped in bales to cotton and wool factories to be combined with one of these fibers and spun into a mixed yarn or it may be spun alone. Many of the new "wool" fabrics are the result of the recent development and improvement in spun rayon.

The method by which cuprammonium yarns are made follows the same general outline as that for viscose yarns, though different chemicals are used in the process, and the handling of the filaments as they come from the spinneret is different. Cotton linters which are the basic raw material are first purified in a caustic soda solution and then are dissolved in what is known as the cuprammonium solution, a chemical combination of copper and ammonia.

Cotton linters are used as the base for acetate yarns, but the finished product is not pure cellulose but a chemical compound. The compound is formed in the first stage of manufacturing. Cleaned and bleached cotton linters are mixed with acetic anhydride, to which a catalytic agent, usually sulphuric acid, is added. The compound is dissolved in acetone, purified and then fed to the spinning machine.

Yarns produced by each of these processes have slightly different characteristics. Viscose yarns are known to have a higher strength when dry but to be weaker when wet than the other types. The cuprammonium yarns rank first in strength when wet. Acetate yarns rank second in strength when dry and are the weakest of the three when wet. And again heat may cause the fibers of an acetate material to melt away, and acetone, an ingredient used in some cleaning fluids, may dissolve them.

To get the best possible service out of a rayon fabric it is important to know whether the fiber has been made by the acetate or cuprammonium or viscose method. This information is not always given on the label. The burning test is the simplest amateur way to differentiate between acetate rayons and those made by other processes. Viscose and cuprammonium rayons flare up and burn quickly to ashes, leaving an odor like burning cotton. Acetate seems to fuse and melt rather than to burst into flames. The material made from acetate yarns is apt to pucker and curl and there will be a residue of small black balls along the edge of the material similar to those left on a partially burned piece of silk. The odor of a burning acetate fabric is quite pungent.

All rayons require careful handling when laundered as the fibers are weaker when wet. If submitted to strain they may break, or stretch, and the garment may not regain its natural shape when dry. Rayon fabrics should not be wrung, twisted, or scrubbed. They should not be soaked for too long a time. The best technique is to use lukewarm water with a generous supply of suds made from a neutral soap and to squeeze the suds through the fabric. Then rinse thoroughly and after gently squeezing out most of the water, roll the material in a turkish towel and knead out the rest of the moisture. It is best for rayon garments to be laid flat to dry—especially if they are knitted goods. When fastened to line, a pin may cut the yarn, and the material may also stretch. Rayon should be pressed on the wrong side and never with a hot iron.

WHAT IS SOAP?

[Concluded from page 12]

if you find they are extremely soft when purchased.

Buy flakes and beads by weight, not by the size of the box they come in. Though these give the consumer less soap per dollar than most other soap products, the convenience of their form may justify the added expense. They are generally purer than many other laundry soaps, and therefore are better suited for delicate fabrics. If used on delicate fabrics, they should be mild, and should, according to the standards on which the Government buys them, contain not over 10 percent water, and no more than two-tenths of one percent of free alkali. Those for fine silks, woolens, and rayons should be used with lukewarm water. Generally, flakes and beads are best for delicate fabrics when made with a good amount of coconut oil. Soap chips and powders, for dishwashing and general textile use, usually contain less pure soap and more builders than flakes and beads. Stronger, their basic oils come from tallow and other animal fats. Like flakes, chips are usually made by drying the liquid soap on hot rollers. Beads are made by spraying the liquid soap through a huge nozzle which causes it to dry in the shape of beads.

Soap powders should be entirely soluble in water. A good soap powder is made of a uniform mixture of soap and sodium carbonate or other builders in powdered form. It is used primarily for cleaning glass, enamel, and other smooth surfaces. It should be free of any material which will scratch or injure the surface. A simple test is to rub the powder on a smooth plate glass with an ordinary 5-cent piece. A good powder will not scratch the glass.

Scouring powders are for the rougher work, such as cleaning pots and pans. They usually contain abrasives such as powdered pumice, volcanic ash, quartz, marble, or feldspar. They should be free of useless "filler" materials.

Scouring cake soaps are usually a combination of these two powders made into a firm cake. Their big advantage is that they lather better since they contain more actual soap than the powders.

Transparent soaps—no longer in vogue—are usually less pure than opaque brands. They contain alcohol, glycerol, or sugar, and sometimes rosin. Says the National Bureau of Standards about them: "Transparency was considered an indication of freedom from impurities, but is actually no indication whatever of purity or quality."

Buy liquid soaps if you want them for some special purpose, not because you feel they will last longer and be easier on the skin. They are water solutions of a neutral vegetable oil soap and rarely contain more than 20 percent true soap. Also in them is generally about 3 percent of glycerine which has an emolient value and prevents excessive foaming in the container. Government standards state they should contain not more than five-hundredths of one percent of free alkali. They are adapted for shampoos and similar preparations.

A pure olive oil castile soap is admittedly one of the mildest and purest soaps on the market. Castile soap is ordinarily thought of as a soap made entirely of olive oil and an alkali. But the Bureau of Standards, in discussing castile soap, has this to say on the subject: "The name now represents a type of soap, the term 'castile' being applied to a soap intended for toilet or household use. . . . There are soaps made entirely from coconut oil which are sold as coconut castiles. Many other castiles are made from a mixture of coconut oil and tallow." An attempt by the Federal Trade Commission to force soap manufacturers to adhere to the former United States Pharmacopœia standards for castile soap was overruled by a United States Court of Appeals a few years ago. The U. S. P. at one time defined castile soap as one made entirely of olive oil and an alkali. If you want a soap made only of olive oil, read the label carefully.

Ordinary medicated and antiseptic soaps—though harmless for the most part—are rarely credited by dermatologists with possessing any curative properties. Of course, there are some antiseptic soaps made especially for hospitals and sick room which meet medical standards. But these are prepared for doctors and are seldom sold over the counter.

Most physicians maintain that for the skin soaps which wash away dirt and germs are mild antiseptics. Many germicides are injurious to the skin, and can rarely be concentrated safely in great enough quantities in soap to be of any use. "Beauty" soaps, according to experts, also can do nothing more than clean and leave the skin fresh and soft. The idea that vitamins can be absorbed through the skin by "specially treated" soaps has been questioned by vitamin authorities. The Chief of the Food and Drug Administration's Vitamin Division, pointing out that the skin does not absorb nourishment for the whole body, says: "The amounts of Vitamin D which could be rubbed or washed in through the skin to remedy a diagnosed deficiency would, according to available data, not be significant."

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